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Client/Matter: 070386-0303769

REMARKS

Claims 1-22 and 24-30 are pending. Reconsideration in view of the following remarks is respectfully requested.

Claims 1-14, 16-18, 21, 22 and 24-30 were rejected under 35 U.S.C. §103(a) over Deak et al. (U.S. Patent 5,662,418) in view of Villar (U.S. Patent 4,44,990). The rejection is respectfully traversed.

Claim 1 recites a temperature probe for measuring the internal temperature of a mass of packed tobacco product including, *inter alia*, an elongated tubular shaft having a hollow interior, an insulating structure mounted on the elongated shaft, a heat conducting structure coupled to the insulating structure, a thermocouple coupled to the heat conducting structure and extending into the hollow interior of the elongated shaft, a control device electrically communicated to the thermocouple and operable to determine a temperature from the thermocouple and a lifting mechanism coupled to the elongated tubular shaft and the control device that moves the heat conducting structure and the elongated tubular shaft between a raised position and a lowered position.

MPEP §2143 states: "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."

It is respectfully submitted that the combination of Deak et al. and Villar fails to establish a *prima facie* of obviousness as the combination fails to describe or suggest all the claim limitations and because there is no motivation or suggestion, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references.

The Office Action on page 2, paragraph number 2, alleges that Deak et al. disclose a lifting mechanism comprising the spring 36. The Office Action also alleges that the spring 36 of Deak et al. is coupled to the probe tube 11 by means of the annular stop 34 and to the transducer 26 by the thermocouples 31 and 32, the lead through 44, the direct welded connection 24 and the extension wires 25. The Office Action alleges that the spring 36 of Deak et al. is operable to move the metallic sheathing 46 provided on the probe tube 11 between raised and lowered positions.

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It is respectfully submitted that Deak et al. do not disclose a lifting mechanism as recited in claim 1. The spring 36 of Deak et al. is part of a bayonet lock 35 that is provided to lock the high temperature probe 10 to the end flange 27 of the internal hot gas housing 33 of the gas turbine. As disclosed in column 5, lines 32-40, of Deak et al., the probe tube 11 is introduced into the hot gas space 29 through opening 45 and the hot gas housing 33 and rests by means of an annular stop 34 on the upper ramp of the flange 27 surrounding the probe opening 45. It is held in this position by the bayonet lock 35 which engages on the flange 27 and has an internal spring 36 which presses from above onto the annular stop 34. The spring 36 of Deak et al. thus is not coupled to the probe tube 11 to move the metallic sheathing 46 between a raised position and lowered position, as recited in claim 1. The spring 36 of Deak et al. merely biases the annular stop 34 of the bayonet lock 35 against the flange 27 of the housing 33 to hold the probe 10 in position.

As acknowledged on page 2 of the Office Action, Deak et al. do disclose or suggest the structure of the temperature probe as recited in claim 1.

It is respectfully submitted that Villar fails to remedy the deficiencies of Deak et al. with respect to claim 1. In particular, it is respectfully submitted Villar also fails to disclose or suggest the structure of the temperature probe recited in claim 1 and also fails to disclose or suggest a lifting mechanism as recited in claim 1.

Contrary to the allegations on page 3 of the Office Action, Villar does not disclose or suggest an elongated tubular shaft having a hollow interior, an insulating structure mounted on the elongated shaft, and a heat conducting structure coupled to the insulating structure, as recited in claim 1. Villar discloses a block of insulating material 46 in a plunger 36 that is slidably mounted in a housing or shell 32. A cap 48 of heat conductive material is provided on an end of the block insulating material 46. The block of insulating material 46 is coupled to the plunger 36, it is not mounted to an elongated tubular shaft having a hollow interior.

The Office Action on page 3, lines 10-14, alleges that the spring 38 of Villar is a lifting mechanism. It is respectfully submitted, however, that the spring 38 is not a lifting mechanism as recited in claim 1.

As disclosed in column 2, lines 41-44, the plunger 36 is normally urged forward toward the opening of the housing or shell 32 by the spring 38 which engages the underside of the plunger. As further disclosed in column 3, lines 1-19, when the unit is to be used, it is pressed against the hot object 58 and the bias of the spring 38 is overcome causing the plunger 36 and the cap 48 to withdraw rearwardly. The spring 38 urges the plunger forward

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and ensures a good contact between the tip and the object to be measured. When the temperature reading is completed and the unit removed from the hot object 58, the spring 38 moves the plunger forward once again to bring the cap 48 into contact with the shell 32 and speed up the cooling or heating of the thermocouple to ambient for the next reading.

As discussed above, the spring 38 of Villar merely biases the plunger 36 into the forward most position or the relaxed state. The spring does not move the cap 48 between a raised position and a lowered position, nor is it coupled to an elongated tubular shaft and a control device.

As the combination of Deak et al. and Villar fails to describe or suggest all the limitations of claim 1, the combination fails to present a *prima facie* case of obviousness.

It is also respectfully submitted that there is no motivation or suggestion to combine the references. As disclosed in column 5, lines 11-16, the probe 10 of Deak et al. is intended to be used for particularly long life times, from 10,000 to 16,000 hours at an indicated operating temperature and without any cooling. Also, as discussed above, Deak et al. provide the bayonet lock 35, including the spring 36 to secure the probe 10 to the flange 27 of the hot gas turbine housing 33.

Villar provide their heat sensing device so that a series of temperature readings can be taken in relatively quick succession, for example, when a train crew member walks along the cars of the train measuring the temperature of each wheel or bearing to check for an overheat condition. See column 1, lines 20-25, of Villar. To achieve this object, Villar provides the spring 38 to bias the plunger 36 into heat conduction relationship with the shell 32 to speed the heating or cooling of the unit ambient. See column 3, lines 1-5. When the unit is to be used to determine the temperature of a hot object 58, the bias of the spring is overcome to remove the cap 48 from the heat conduction relationship with the shell 32 and to ensure good contact between the cap 48 and the object 58 to be measured. The Villar device thus differs significantly from Deak et al. in that the temperature readings of many objects are to be accomplished over a relative short period of time, whereas Deak et al. intend for the probe 10 to be used for 10,000 to 16,000 hours. One of ordinary skill in the art would not have been motivated to combine these different temperature sensing devices which have very different objectives.

Claims 2-14, 16-18 and 21-24 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

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Claim 25 recites a method of determining an internal temperature of a packed mass product. The method includes providing a mass of product, providing a temperature probe comprising an elongated tubular shaft having a hollow interior, an insulating structure mounted on the elongated shaft, a heat conducting structure coupled to the insulating structure, a thermal couple coupled to the heat conducting structure and extending into the hollow interior of the elongated shaft and a control device connected to the thermocouple and operable to determine a temperature from the thermocouple. The method further includes determining the temperature of the heat conducting structure, comparing the temperature of the heat conducting structure to a pre-determined temperature range to determine if the temperature of the heat conducting structure is within the predetermined range. The method also includes changing the temperature of the heat conducting structure if the temperature of the heat conducting structure is outside of the predetermined range so that the temperature of the heat conducting structure is within the predetermined temperature range, inserting the probe into the mass so that the heat conducting structure is disposed in a thermal communication with the product on the interior of the mass, and determining the internal temperature of the mass based on information from the probe.

The Office Action on page 4, lines 2-8, alleges that Villar disclose that when the temperature reading is completed, the device, including the cap 48, is removed from the object and allowed to cool to ambient for the next reading. According to the Office Action "Villar does suggest the step of changing (cooling) the temperature of the heat conductive structure when it is outside the predetermined (ambient) so as to allow an operator to prepare the device for temperature measurements."

It is respectfully submitted that Villar does not disclose or suggest any of the steps of claim 25. Villar does not disclose or suggest determining a temperature of the cap 48. Villar merely discloses bringing the cap 48 into contact with the housing or shell 32 to allow the cap to return to ambient temperature. Villar does not determine the temperature of the cap 48, nor does Villar compare the temperature of the cap to a pre-determined temperature range to determine if the temperature of the cap 48 is within the predetermined range.

Villar also does not disclose or suggest changing the temperature of the cap 48 if the temperature of the cap is outside of a predetermined temperature range. After conducting a measurement, the cap 48 of Villar is also brought into contact with the housing or shell 32 to allow the cap 48 to return to ambient temperature.

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Villar also does not disclose or suggest inserting the cap into a mass so that the cap 48 is disposed in thermal communication with the product on the interior of the mass. Villar also does not disclose or suggest determining the internal temperature of a mass based on information from the cap 48. The cap 48 of Villar is merely placed on a surface of an object 58 to determine the temperature.

As the combination of Deak et al. and Villar does not describe or suggest all the limitations of claim 25, the combination fails to present a *prima facie* case of obviousness. In addition, as discussed above, as there is no suggestion or motivation to combine Deak et al. and Villar, the combination fails to present a *prima facie* case of obviousness.

Claims 26-29 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 25 and for the additional features recited therein.

Claim 30 recites a temperature probe assembly mounted for insertion into a product mass for measuring an internal temperature of the mass. The assembly includes a lifting mechanism coupled to an insulated shaft and a temperature controller that moves a heat conducting structure and the insulated shaft between a raised position and lowered position.

As discussed above, neither Deak et al. nor Villar disclose or suggest a lifting mechanism coupled to an insulated shaft and a temperature controller that moves the heat conducting structure and the insulated shaft between a raised position and a lowered position. Accordingly, the combination fails to present a *prima facie* case of obviousness. As also discussed above, as there is no motivation or suggestion to combine the references, the combination fails to present a *prima facie* case of obviousness.

Reconsideration and withdrawal of the rejection over Deak et al. in view of Villar are respectfully requested.

Claim 19 was rejected under 35 U.S.C. §103(a) over Deak et al. in view of Villar and further in view of Wu et al. (U.S. Patent 6,712,996) and claim 20 was rejected under 35 U.S.C. §103(a) over Deak et al. in view of Villar and further in view of Muze et al. (U.S. Patent 6,202,480). The rejections are respectfully traversed.

Claims 19 and 20 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein. In addition, it is respectfully submitted that both Wu et al. and Muze et al. fail to cure the deficiencies of the combination of Deak et al. and Villar with respect to claim 1.

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Reconsideration and withdrawal of the rejection of claims 19 and 20 are respectfully requested.

Claims 1-14, 16-18, 21, 22 and 24-30 were rejected under 35 U.S.C. §103(a) over Villar in view of Kaufman (U.S. Patent 4,595,300). The rejection is respectfully traversed.

The Office Action on page 10, lines 12-14, alleges that Villar discloses all of the limitations of claim 1 with the exception of the heat conductive structure being disposed within a mass of packed product. The Office Action on page 10, lines 15-16, alleges that Kaufman teaches to measure temperature inside a packed sample 11. As discussed above, it is respectfully submitted that Villar does not disclose or suggest the features recited in claim 1, including an elongated tubular shaft having hollow interior, an insulating structure mounted on the elongated shaft, and a heat conducting structure coupled to the insulated structure. It is also respectfully submitted that Villar does not disclose or suggest a lifting mechanism as recited in claim 1.

It is respectfully submitted that Kaufman fails to cure the deficiencies of Villar with respect to claim 1. It is also respectfully submitted that there is no motivation or suggestion to combine Villar and Kaufman.

Kaufman also fails to disclose or suggest an elongated tubular shaft having a hollow interior, an insulating structure mounted on the elongated shaft, and a heat conducting structure coupled to the insulating structure. Kaufman merely discloses a thermocouple probe 24 that is inserted in a well in a hydrocarbon reactor.

As the combination of Villar and Kaufman fails to describe or suggest all the limitations of claim 1, the combination fails to present a *prima facie* case of obviousness.

It is also respectfully submitted that there is no motivation or suggestion to combine Villar and Kaufman. As discussed above, Villar is directed to a temperature sensing device used to measure the temperature of the surface of an object, such as a wheel or bearing of a train car. The temperature sensing device of Villar is not intended to determine the internal temperature of a packed mass product. It is respectfully submitted one of ordinary skill in the art would not have been motivated to combine the temperature sensing device of Villar with the assembly of Kaufman for determining the temperature of a hydrocarbon reactor well.

Claims 2-14, 16-18 and 21-24 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

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As discussed above, claim 25 recites a method of determining an internal temperature of a packed mass product. As also discussed above, Villar does not disclose or suggest any of the limitations of claim 25. It is respectfully submitted that Kaufman fails to cure the deficiencies of Villar with respect to claim 25 and that even assuming it would have been obvious to combine the references, such a combination would not have resulted in the invention of claim 25.

Claims 26-29 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 25 and for the additional features recited therein.

Claim 30 recites a temperature probe assembly including an insulated shaft, a heat conducting structure mounted on the end of the insulated shaft and a temperature coupled to the heat conducting structure that measures the internal temperature of the mass when the probe assembly is inserted into the mass.

Neither Villar nor Kaufman describe or suggest the features of claim 30. Accordingly, the combination fails to present a *prima facie* of obviousness.

Reconsideration and withdrawal of the rejection of claims 1-14, 16-18, 21, 22 and 24-30 over Villar in view of Kaufman are respectfully requested.

Claim 19 was rejected over Villar in view of Kaufman and further in view of Wu et al. and claim 20 was rejected over Villar in view of Kaufman and further in view of Muze et al.

Claims 19 and 20 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein. In addition, it is respectfully submitted that both Wu et al. and Muze et al. fail to cure the deficiencies of the combination of the Villar and Kaufman with respect to claim 1.

Reconsideration and withdrawal of the rejection of claims 19 and 20 are respectfully requested.

Applicant appreciates the indication that claim 15 defines patentable subject matter. As 16 depends from claim 15, it is respectfully submitted that claim 16 is also allowable, although it has been rejected as discussed above.

In view of the above remarks, it is respectfully submitted that all the claims are allowable and that the entire application is in condition for allowance.

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Should the Examiner feel that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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